Regulation of International Communications in the Age of the Internet: Lagging Behind the Future

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I. Background

In international communications, 1998 brought watershed events and several major milestones. The World Trade Organization (WTO) Agreement on Basic Telecommunications Services came into force,[1] and a cascade of liberalization initiatives ensued around the world,[2] setting off a mad rush of corporate realignment,[3] multinational expansion,[4] and private international infrastructure investment.[5] The Federal Communications Commission (FCC) took several bold

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1. The Fourth Protocol to the General Agreement on Trade in Services (GATS), April 30, 1996, 36 I.L.M. 366 (1997) [hereinafter WTO Basic Telecommunications Agreement] was signed on Apr. 15, 1997 and came into force on Feb. 5, 1998.

2. The following countries made commitments in the WTO Basic Telecommunications Agreement to various degrees of liberalized market access in 1998: Australia, Austria, Belgium, Brazil, Canada, Chile, Colombia, Denmark, Dominican Republic, El Salvador, Finland, France, Germany, Guatemala, Iceland, Italy, Japan, Mexico, The Netherlands, New Zealand, Norway, Philippines, Spain, Sweden, Switzerland, United Kingdom, and United States. *See* Kelley, Drye, & Warren L.L.P., *The WTO Agreement: A Country-By-Country Guide to Commitments*, TELECOMM. REP. INT'L, Oct. 1998.

3. Among the many corporate alliances announced in 1998, one of the more notable realignments was the "divorce" between MCI Corporation and British Telecom occasioned by the successful tender offer for MCI by WorldCom; *see* Application of WorldCom, Inc. and MCI Communications Corporation for Transfer of Control of MCI Communications Corporation to WorldCom, Inc., 13 FCC Rcd 18025, FCC 98-225, (Sept. 14, 1998) [hereinafter MCI WorldCom Merger Order]; and the subsequently proposed alliance between British Telecom and AT&T; *see* AT&T Corp., VLT Co. L.L.C, Violet License Co. LLC and TNV (Bahamas), Application for Consent for Grant of Section 214 Authority, Modification of Authorizations and Assignment of Licenses in Connection with Proposed Joint Venture Between AT&T and British Telecom, Nov. 10, 1998, IB Docket No. 98-212 (pending).

4. Some of the fast-growing non-incumbent multinational carriers providing retail telephone services include WorldCom, RSL Communications and Primus Telecom Group. Others are focused on wholesale services including Teleglobe, Star Telecom, and Pacific Gateway Exchange and IDT Corporation. *See* Federal Communications Commission (FCC) International Bureau, Report on Internationall Telecommunications Markets 1997-1998 (Dec. 7, 1998) (last visited Apr. 6, 1999) <http://www.fcc.gov> [hereinafter 1998 Int'l Rep.].

5. In Europe, MCI WorldCom and Viatel have planned to invest hundreds of millions of dollars in pan-European fiber networks. In Mexico and elsewhere in Latin America, MCI WorldCom, AT&T, Qwest, BellSouth, GTE, and other U.S. carriers have invested billions of dollars in fiber optic and wireless networks. MCI WorldCom

steps of its own, including revising its rules for granting foreign entry into the U.S. international services market,[6] implementing a controversial decision to mandate reductions in the international settlement rates agreed to between U.S. and foreign carriers,[7] opening new proceedings to further streamline international carrier authorization and settlement rules,[8] and reclassifying major carriers.[9]

As significant as they have been,[10] however, the long range importance of these developments pales in comparison to the smaller decisions having an incremental impact on the continued evolution of the Internet. This is the first year that decision makers have begun seriously to think that the resolution of policy conflicts and legal challenges concerning the Internet ultimately may lead to an entirely new paradigm of what communications services are, how they are provided, and whether or how they should be regulated.[11] The legal issues that have arisen during 1998 concerning the Internet have the seeds of this new paradigm within them.[12] Perhaps the Internet ultimately will be harnessed by regulation. On the other hand, the Internet may irreversibly alter regulation of telecommunications as we know it. No one knows.[13] Private and public decision-makers just beginning to get used to competition in conventional telecommu-

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also paid over $900 million to purchase control of the Brazilian long distance company Embratel. MCI WorldCom is also investing heavily in Japan. Global undersea cables such as the Global Crossing system, as well as new global satellite constellations such as Iridium and Orbcomm, also initiated service. *See* 1998 Int'l Rep., *supra* note 4, at 3-4.

6. Rules and Policies Regarding Foreign Participation in the U.S. Telecommunications Market, 12 FCC Rcd 23891, FCC 97-398 (Nov. 26, 1997). In 1998, the FCC authorized entry to the United States market of companies with affiliates possessing market power in such countries as Hong Kong and various Caribbean countries (Cable & Wireless); Canada (BC Tel); Ireland (Telecom Eirann); The Netherlands (KPN US); Switzerland (Swisscom); The Netherlands, Sweden, and Switzerland (Unisource); Norway (Telenor); Spain, Argentina, Peru, Chile (TLD); Denmark (TeleDanmark); Korea (Korea Telecom); Japan (KDD and NTTA); and Singapore (Singtel). *See* 1998 Int'l Rep., *supra* note 4, at attachment 4.

7. International Settlement Rates, 12 FCC Rcd 19806, FCC 97-280, Aug. 18,1997, *aff'd sub nom.* Cable & Wireless v. F.C.C. No. 97-1612 (D.C. Cir. Jan. 12, 1999) [hereinafter Benchmarks Order].

8. 1998 Biennial Regulatory Review of International Common Carrier Regulations, 13 FCC Rcd 13713, FCC 98-149 (July 14, 1998); 1998 Biennial Regulatory Review: Reform of International Settlements Policy and Associated Filing Requirements and Regulation of Accounting Rates, 13 FCC Rcd 15320, FCC 98-190 (Aug. 6, 1998).

9. AT&T's non-dominant status in international markets was confirmed. Motion of AT&T Corp. to be Declared Non-Dominant for International Services, 11 FCC Rcd 17963, FCC 96-209 (May 14, 1996), *recon.* 113 FCC Rcd 21501, FCC 98-253 (Oct. 5, 1998). The FCC also declared Comsat to be non-dominant in the provision of competitive services. Comsat Corporation, Petition Pursuant to Section 10(c) of the Communications Act of 1934, as amended, For Forbearance from Dominant Carrier Regulation and Reclassification as a Non-Dominant Carrier, *etc.*, 13 FCC Rcd 14083, FCC-98-78, (Apr. 28, 1998). This paved the way for consideration of the issue of direct access to the Intelsat global satellite system for the first time in fifteen years. Direct Access to the Intelsat Satellite System, Notice of Proposed Rulemaking, 13 FCC Rcd 22013, FCC 98-280 (Oct. 28, 1998).

10. *See, e.g.*, International Bureau Reports On Developments in International Telecommunications Markets, FCC News Release, Rep. No. IN 98-58 (Nov. 19, 1998); Twin Anniversary of WTO Agreement to Open International Telecom Market and Commission's Benchmarks Order Marked By Decline In International Calling Rates and Greater Service Options, FCC News Release, Rep. No. IN 99-6 (Feb. 5, 1999).

11. In a keynote speech outlining a "Digital Declaration of Independence," at the International Telecommunications Union (ITU) Plenipotentiary meeting in Minneapolis, Minnesota on Oct. 12, 1998, Vice President Albert Gore presented a vision of such a new paradigm, built around the global expansion of a multimedia Internet-based platform. The text of the speech is available at <http://www.itu.int/newsroom/press/PP98/Documents/Statements_Gore.html> (visited Apr. 6, 1999).

12. *See, e.g.*, White House Task Force, *Framework for Global Electronic Commerce* (July 1, 1997), (visited Apr. 6, 1999) <http://www.iitf.nist.gov/eleccomm/ecomm.htm>.

13. For several articles exploring the different aspects of this issue, see *Internet Telephony: Blip on the Screen or Glimpse at the Future?*, 2 TELECOMM. REP. INT'L J. 3 (1998).

nications literally must leapfrog into the information age. To foreshadow the issues that will be faced, this article specifically addresses the ways in which the Internet is challenging, as well as being challenged by, traditional notions of telecommunications regulation both in the U.S. and internationally.[14]

II. The Challenge of the Internet

A. A Bit of History

The genius of the Internet is that it allows independent, privately-owned computer networks to operate together in a seamless, ad hoc "network of networks," theoretically open and accessible to anyone. The Internet neutralizes these different formats through the use of a special set of digital protocols, the Transmission Control Protocol/Internet Protocol (TCP/IP), which translate all of the individual architectures used by different computers into a universal platform.

The boom in private commercial applications of the Internet, once the province of academia and the military, was made possible by two developments in the 1990s. First, an open system of domain name registrations was established by the National Science Foundation, making possible public awareness of the commercial value of globally unique domain names. Second, the World Wide Web protocol (http://www) was invented,[15] giving rise to an intense proliferation of search engines and websites that have fueled exponential growth in internet hosts[16] and connected users. The Web is now the place to be.[17]

After evolving in parallel for many years, the Internet and the global public switched telephone network (PSTN) recently have crossed paths more frequently. The overall growth of the Internet as well as its increasingly data-rich applications have placed heavy demands on telecommunications transmission infrastructure. Its digital base and packet-switched architecture permit significant economies of network operations, making it attractive for a number of telecommunications-related applications.[18] Carriage of voice telephony traffic over dedicated digital packet-switched facilities using the IP protocol is now commonplace. Advances in software also are beginning to overcome the quality issues that restrain live voice transmissions over the public Internet. Recognizing the market impact of the Internet, most major telephone companies have acquired their own Internet service providers and/or Internet backbone providers.[19] It is becoming apparent that these developments will have an important, and unavoidable, impact on the future of international telecommunications and public policy.[20]

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14. Many of the new legal issues arising out of the Internet itself, including jurisdiction, governance, intellectual property, privacy, and security are outside the scope of this brief review.

15. The "http," or "hypertext transfer protocol," works on top of underlying Internet protocols to permit the searching and linking of documents and graphics.

16. In 1990, there were 313,000 total Internet hosts. In January 1999, there were 43,230,000. *See* Network Wizards (visited Apr. 6, 1999) <http://nw.com>.

17. Barry M. Leiner, et al., *A Brief History of the Internet* (visited Apr. 6, 1999) <http://www.isoc.org/internet/history/brief/html>.

18. The long-range economies of IP Telephony compared to the PSTN are still being debated. *See, e.g., Telegeography 1999*, Washington, D.C., (visited Apr. 6, 1999) <http://www.telegeography.com> [hereinafter Telegeography].

19. The market impact of such integration was specifically addressed in the MCI-WorldCom merger when MCI agreed to divest all of its Internet assets to Cable & Wireless prior to closing. *See* MCI WorldCom Merger Order, *supra* note 3.

20. *See generally* Telegeography 1999, *supra* note 18, at 112-49.

B. Distinguishing Characteristics

The Internet has evolved according to fundamentally different principles than the PSTN. The PSTN developed as an analog transmission medium for carriage of live voice signals over dedicated circuits established between origination and termination points on physically interconnected networks. In contrast, the Internet is data-based, open, and always "on," operating across independently-owned but interoperable packet-switched networks.

The PSTN is evolving as an intelligent network, directing telephone traffic according to designed efficiencies and planned routing. The PSTN is designed for high quality transmission, but when a circuit goes down, the message cannot "route around" the blockage on its own. In the Internet, the network is dumb and the packets are smart. A globally unique address is embedded in every packet as part of the message it carries. The packets may then pass from one network to another in a completely unplanned journey, avoiding traffic jams as they go and following the directions of "routers" along the way.

In the PSTN, changes in the function and capabilities of the network depend largely upon changes in technical infrastructure. In the Internet, operating protocols are arrayed in layers that "ride" on top of physical transmission systems. Consequently, upgrades and changes to the operation of the Internet, as well as changes in the types of messages carried, can take place without modification to the underlying transport network. The layered nature of the Internet keeps it flexible and adaptable.

PSTN networks are operated by enterprises that have contractual privity with one another requiring the payment of settlements or access charges on measured traffic. Internet service providers (ISPs) traditionally have exchanged traffic through rough-justice "peering arrangements," based on the assumption that costs and revenues are essentially similar.

C. Emerging Policy Problems

As the PSTN and the Internet become increasingly interwoven, regulators all over the world are struggling to assure the public of the continued availability of the best of both networks. This is becoming a significant challenge.

Bypass of the PSTN in the form of voice over the Internet (VoN) or voice over Internet protocol (VoIP) (either also referred to as IP Telephony), is threatening the long-term viability of telephone network pricing structures, particularly the subsidization of "universal" telephone service.[21] On the other hand, inclusion of the Internet within universal service contribution systems is viewed as a significant threat to the economics that make the Internet so attractive.

Even more fundamentally, from the beginning the Internet has been classified by U.S. federal and state regulatory authorities as an "enhanced" or "information" service exempt from telecommunications regulation.[22] This has ensured its exemption from universal service contribution obligations, but also has safeguarded Internet service providers from licensing

21. *See, e.g.*, Albert Halprin, *The Internet, a Latter-Day Emperor with No Clothes*, *supra* note 13, at 13-15.

22. Enhanced services are those "offered over common carrier transmission facilities used in interstate communications, which employ computer processing applications that act on the format, content, code, protocol or similar aspects of the subscriber's transmitted information; provide the subscriber additional, different or restructured information; or involve subscriber interaction with stored information." *See* Amendment of Section 64.702 of the Comm'n's Rules and Regs. (Second Computer Inquiry), 77 F.C.C. 2d 384, 420 (*Computer II*), modified by Memorandum Opinion and Order, 84 F.C.C. 2d 50 (1980) (*Final Order*), *aff'd and clarified by* Memorandum Opinion and Order on Further Reconsideration, 88 F.C.C. 2d 512, *aff'd sub nom.* Computer & Comm. Indus. Ass'n v. FCC, 693 F.2d 198 (D.C. Cir. 1982). The Final Order made clear that the enhanced services definition applied to international services.

requirements. However, a service is not necessarily classified as "enhanced" just because it utilizes protocol conversion.[23] The FCC has specifically found that a variation of packet-switching, referred to as "frame relay," is a "basic" service when used for bare transmission when the transmitted information is unchanged from sender to receiver.[24] To the extent that the Internet is used for voice applications that might otherwise be sent over the PSTN, regulators are pressured to reconsider the regulatory status of Internet transmission operations in general.

Over the near term, the Internet and the PSTN will begin to look increasingly similar with overlapping functions. As the Internet matures, ISPs will become more diversified and universal peering arrangements will become less practicable. The need for "settlements," at least with respect to some functions, will arise. Universal service contributions will be difficult to escape, particularly for phone-to-phone VoIP that utilizes IP-based packet-switching over dedicated facilities, but does not necessarily actually utilize the public Internet.

Over the long term, however, the real issue is not whether IP Telephony and basic voice telephony are consistently regulated according to familiar PSTN concepts. Such a question denies the future.[25] Rather, it is whether regulators can find an approach that successfully harmonizes the treatment of voice telephony with the multimedia applications that eventually will characterize all IP-based networks, regardless of whether they are part of the public Internet or maintained as private parallel systems.[26]

III. Recent Legal Developments

A. Communicating Globally: The Internet and International Telecom

1. *Summary of Issues*

In the international arena, regulatory attention is beginning to focus on the impact of IP telephony as an instrument of arbitrage, enabling competitive service suppliers to undercut published international telephone rates.[27] International telephone rates of most countries have long been maintained at a level well above cost ostensibly to subsidize below-cost domestic rates. High international rates charged to end users also have reflected above-cost settlement rates, negotiated between interconnecting international carriers for sharing revenues. Due to the imbalance of traffic, the national carriers of many foreign countries receive substantial settlement payments from U.S. carriers for U.S.-originated traffic to their countries. Over the past several years, the FCC has waged an aggressive campaign to encourage foreign countries to reduce international settlement rates and collection charges as well as to open their markets

23. On the other hand, the FCC has treated as "enhanced" services that include "basic" components, if the enhanced feature so "contaminates" the service that it makes most sense to treat the entire offering as enhanced. Third Computer Inquiry, Phase II, 3 FCC Rcd 1150, 1170 n. 23, FCC 88-10 (Feb. 18, 1988).

24. Independent Data Communications Manufacturers Assn., Inc., Petition for a Declaratory Ruling that AT&T's Interspan Frame Relay Service is a Basic Service, 10 FCC Rcd 13717, DA 95-2910 (Oct. 18, 1995). This decision is currently applicable only to frame relay service. However, the FCC has initiated a rulemaking proceeding that may result in a more general redefinition of "enhanced" service which may exclude basic transport services. Computer III Remand Proceedings: Bell Operating Company Provision of Enhanced Services, Further Notice of Proposed Rulemaking, 13 FCC Rcd 6040, FCC 98-8 (Jan. 30, 1998).

25. *See, e.g.*, Kevin Werbach, The Digital Tornado: The Internet and Telecommunications Policy, OPP Working Paper No. 29, Federal Communications Commission, Mar. 1997.

26. *See, e.g.*, Internet Telephony: Build Once, Run Anything?, Telegeography 1999, *supra* note 18, at 139, Figure 26.

27. *See, e.g.*, George Vinall, *Down Memory Lane: It's Déjà vu for IXCs*, 2 Telecomm. Rep. Int'l J. 7-12 (1998).

to competition. Many other countries, particularly those that have not yet privatized their national operators or authorized competition, resist reductions in rates and settlement payments.

2. *U.S. Approach*

For years the FCC relied primarily on foreign administrations to encourage reductions in settlement rates, and maintained a "uniform settlements policy" for U.S. competitive carriers to keep them from being "whipsawed" by foreign monopolies.[28] The FCC approved call-back and other international operations such as "country direct" calling, which tended to undercut foreign carriers' high international rates by making the lower U.S. rate apply to the call.[29]

Beginning in 1996, the commission initiated new policies to strengthen its hand in lowering accounting rates and promoting competition. The FCC started by permitting some flexibility to U.S. carriers to negotiate alternative settlement rates in competitive foreign markets.[30] By 1997, there seemed to be greater urgency to reduce international settlement outpayments made by U.S. carriers. At that time, the WTO Basic Telecommunications Agreement was being completed under the GATS. The commitments of WTO members under that multilateral framework were decidedly asymmetrical, with the United States committed to ensure market access to foreign carriers from countries that would remain relatively closed. In this context, the FCC was convinced that U.S. carriers would be harmed unless settlement payments to foreign carriers were significantly reduced.

The FCC's international settlement *Benchmarks Order*, which became effective on January 1, 1998, set mandatory levels for the international settlement rates U.S. carriers would be allowed to negotiate.[31] A separate benchmark settlement rate and transition schedule was set for different countries grouped by income levels, using interconnection rates in published tariffs as a guide.[32] The *Benchmarks Order*, which will lead to significant reductions in international settlement rates and revenues for many countries, was highly controversial, both for the way the benchmarks were calculated as well as for the direct impact on foreign companies and sovereigns. An appeal of the order, led by Cable & Wireless, plc, and participated in by many foreign carriers and telephone administrations, was ultimately unsuccessful.[33]

As of January 1, 1998, most European countries, formerly large recipients of settlement payments, became open to competition in accordance with the European-wide commitments in the WTO Basic Telecom Agreement and promptly reduced settlement rates. Japan and

28. The uniform settlements policy includes the requirement of uniform accounting rates (for all U.S. carriers serving a particular country), 50-50 sharing of toll revenues between U.S. carriers and their foreign correspondents, and the acceptance by U.S. carriers of return traffic only in proportion to their share of U.S. originated traffic to that country. *See* Implementation of Uniform Settlements Policy for Parallel International Communications Routes, 51 Fed. Reg. 4736 (1986). The policy has been subsequently refined, including through the codification of the "proportionate return" requirement. Fourth Report and Order on Regulation of International Accounting Rates, 11 FCC Rcd 20063, FCC 96-459 (Dec. 3, 1996).

29. *See* VIA USA Ltd., et al., 9 FCC Rcd 2288, FCC 94-86 (May 11, 1994), *recon.* 10 FCC Rcd 9540, FCC 95-224 (June 15,1995).

30. Policy Statement On International Accounting Rate Reform, 11 FCC Rcd 3146, FCC 96-37 (Jan. 31. 1996); Regulation of International Accounting Rates (Fourth Report and Order), 11 FCC Rcd 20063, FCC 96-459 (Dec. 3, 1996).

31. *See* Benchmarks Order, *supra* note 7.

32. Settlement rates must be at $0.15 per minute for upper income countries as of January 1, 1999; $0.19 per minute for upper middle income countries as of January 1, 2000; $0.19 per minute for lower middle income countries as of January 1, 2001; and $0.23 per minute for lower income countries as of January 1, 2002. For countries with a teledensity of one, the effective date is January 1, 2003.

33. *See* Benchmarks Order, *supra* note 7.

Canada, also large calling partners, implemented similar major reforms. This has significantly relieved pressure on accounting rates. In fact, the one major market of critical importance to the United States that still gives U.S. carriers difficulty, both in terms of settlements and market access, is Mexico.[34]

Other alternate routing schemes and settlement mechanisms are becoming widespread as enterprising carriers continue to look for ways to maximize volume and margin. As countries implement reforms, including the "rebalancing" of below-cost local charges and above-cost international rates, first-level arbitrage strategies based on differentials in calling prices, such as call-back and country direct services, lose their appeal. Similarly, as accounting rates decline, second-level arbitrage strategies based on differentials of settlement rates in different countries such as refile[35] and switched hubbing,[36] become less necessary. The game now is the avoidance of settlements altogether.

Once again, the FCC has been cautiously supportive of service innovations that tend to depress international calling rates. Countries that meet FCC benchmark settlement rates are also approved for international simple resale (ISR) operations.[37] ISR is a third-level arbitrage strategy that avoids the settlement process entirely by routing voice traffic over dedicated international telephone lines that are open to the PSTN at one or both ends. ISR can be provided over leased lines or an operator's own facilities. Increasingly, to achieve efficiencies as well as to meet foreign country infrastructure investment requirements, companies are encouraged to implement international "whole circuit" configurations that support facilities-based ISR.

Whole circuit configurations also facilitate IP telephony, particularly of the VoIP variety. As a fourth-level arbitrage strategy, phone-to-phone or computer-to-phone IP telephony not only avoids international settlements, but also permits the significant economies of digital compression and packet switching to be passed along to the end user at highly competitive rates.[38] The FCC has informally supported the development of such services, again to create pressure in the market to force reductions in international settlements and collection charges. The FCC is aware, however, that companies from foreign countries are beginning to play the same game, and that asymmetrical bypass of international settlements for international traffic terminating in the United States could create distortions in the U.S. market.

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34. *See Telmex/Sprint Communications, Inc., Conditional Authorization and Certificate*, 12 FCC Rcd 17551, DA 97-2289 (Oct. 30,1997); *Final Authorization and Certificate*, 13 FCC Rcd 21663, DA 98-1585 (Aug. 7, 1998); *Order to Show Cause*, 13 FCC Rcd 24990, DA 98-2400 (Nov. 24, 1998). *See generally* Aileen A. Pisciotta, *Telecom Border Wars: The Clash of U.S. and Mexican Telecommunications Policies, Punto de Vista*, CCH MEXICO L. & BUS. REP. 6 (Nov. 30, 1998); Aileen A. Pisciotta, *Recent Maneuvers in the U.S.-Mexico Telecom Wars, Punto de Vista*, CCH MEXICO L. & BUS. REP. 5 (Jan. 29, 1999).

35. "Refile," also called "reorigination," refers to the routing of an international call through an intermediate country at which the call appears to be terminated and then originated as a new call from the intermediate point to the ultimate destination country. This indirect routing is cheaper than the direct route if the combined settlement rates on the two legs of the call are significantly below the settlement rate that would apply on a direct route.

36. "Switched hubbing" is similar to refile, but the route between the originating country and the intermediate country goes over a dedicated facility as "private line" traffic, for which no international settlements are due. Settlements are paid only for routing the call from the intermediate country to the ultimate destination country over the PSTN.

37. To date, the countries that have been approved for ISR include Canada, U.K., Sweden, New Zealand, Australia, Netherlands, Luxembourg, Norway, Denmark, France, Germany, Belgium, Austria, Japan, Switzerland, Italy, Ireland, and Hong Kong. *See* <http://www.fcc.gov>.

38. For example, IDT Corporation's "Net2Phone" service offers deep discounts on computer-to-phone calls, including $0.10 per minute rates to the U.S. from anywhere in the world, and sweetens the deal with offers of free calling time. *See* <http://www.net2phone.com>.

VoIP does not fully avoid local connection charges, because the call often must be carried for the "last mile" by a local telephone company for which compensation must be paid. The fifth layer of arbitrage, the computer-to-computer VoN variety may even avoid this charge. This configuration is not yet technologically mature, and transmissions still suffer from poor quality, delay, and lost packets. When these problems are solved, however, bypass will be complete as well as irremediable. Voice traffic will be impossible to segregate from other data traffic. Moreover, the features of telephony on which regulation is focused, e.g., the licensing of "facilities,"[39] control of per minute rates, ensuring non-discriminatory offerings of "like services," etc., cannot meaningfully be applied to a true VoN service provider. The difficulty of achieving a useful redefinition of the "public interest" rationale for regulation in this context is just now beginning to be appreciated, and will challenge U.S. and foreign policy-makers for years to come.

3. *International Developments*

IP Telephony is alluring to foreign as well as U.S. entrepreneurs in the global telecommunications market, and many of them have initiated their own market trials.[40] Moreover, international standards bodies, including the International Telecommunications Union (ITU) and the European Telecommunications Standards Institute (ETSI) have begun studies on IP telephony technical issues. Other regional groups have begun to study economic impacts.[41] It is now becoming recognized that, world-wide, access to the "global information infrastructure" is lumpy, at best. In the near term, at least, there is a real possibility that the unevenness of Internet implementation and the lack of standards for configuring, interconnecting, and charging for Internet-based services will create a divide between the Internet "haves" and "have nots."

Most regulators, however, are not yet grappling with this issue. To date, the focus has remained stuck on the issue of whether IP Telephony is a permissible competitive voice service. Several countries that have identified voice telephony as a service reserved to privatized national companies or a select group or number of licensees view competitive and unlicensed IP Telephony as impermissible.[42] Some countries accept IP Telephony on an informal basis because it is

39. Identification of relevant facilities will be increasingly difficult as network functions become more specialized and stratified. For example, companies such as ITXC Corp. are providing such services as wholesale routing, both over the Internet and private facilities, as well as authorization and settlement services to other IP Telephony service providers. *See* <http://www.itxc.com>. GRIC Communications, Inc. offers global "Internet roaming," through network management, routing, authentication, billing, and settlement services to ISPs and telephone companies. *See* <http://www.gric.com>.

40. For example, Deutsche Telekom of Germany has launched pilots of "T-Net-Call," which permits IP telephony calls to several countries through certain access points. Telia of Sweden has developed an IP telephony service for Scandinavia. Telstra of Australia initiated a limited trial of IP telephony to London.

41. The Telecommunications Working Group of the Asia-Pacific Economic Cooperative has sponsored a study of "International Charging for Internet Services." *See* Tel Forum; Internet Study <http://www.pecc.org> (visited June 6, 1999). Among other issues, the requirement that non-U.S. based ISPs must pay for the entire cost of transport to U.S.-based servers has been capturing attention. On January 26, 1999, eight Asian carriers sent a joint letter to the FCC complaining that this current practice is unduly burdensome. New global high bandwidth satellite systems in development, such as Teledesic and Skybridge, ultimately may alleviate, or even reverse, the practice. *See* Telegeography 1999, *supra* note 18, at 138.

42. For example, Mexico has not declared IP Telephony illegal, but regulatory officials hav strongly indicated that it will not be permitted as unauthorized "bypass." *See, e.g.*, presentation of Javier Lozanoe Alarcon, President of the Mexican Federal Telecommunications Commission, at the Center for Strategic and International Studies, February 18, 1999. In China, despite a court ruling that IP Telephony is not criminal, the Ministry of Information Industry has moved to preserve exclusive rights over voice telephony for China Telecom, China Unicom, and Jitong. *See* Contradictions on Internet Telephony in China.

innovative and does not yet have a major impact. Certain other countries, including Japan and Hong Kong, have openly embraced it.[43]

B. Connecting Locally: The Internet and Domestic Interconnection

1. *Universal Service Contributions*

One of the most significant domestic issues facing regulators in the United States is likely to face regulators in foreign countries as well. It is the relationship of the Internet and Internet-related services to "universal service." Current interpretations of U.S. statutory definitions exclude ISPs from having to contribute to the Universal Service Fund (USF), but the definitions are being reassessed. In the United States, the Telecommunications Act of 1996[44] mandated that certain explicit subsidy mechanisms be established to support the universal availability of telecommunications services, including for schools, libraries, and rural health clinics.[45] These subsidies are supposed to be supported by all telecommunications carriers that provide interstate service.[46] The FCC has excluded "enhanced services" from the definition of telecommunications, thus, only revenues from basic services are used to calculate an entity's retail gross revenues subject to the USF contribution obligation.[47] The FCC further has found that ISPs do not appear to provide "telecommunications service" and are therefore are not "telecommunications carriers" that must contribute to the USF.[48] Political pressure to avoid significant increases in telephone rates from the flow through of USF subsidies to subscriber rates create incentives to broaden the pool of contributors to include ISPs. At the same time, proponents of the Internet have argued that, as a nascent service, the Internet and related services require special consideration and should be protected from regulation or from having to pay subsidies for basic telephone service.[49]

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43. *See generally* OECD Working Party on Telecommunication and Information Services Policies, *Internet Voice Telephony Developments*, DSTI/ICCP/TISP(97)3/FINAL, Apr. 3, 1998, Table 1 (providing a chart comparing regulatory requirements for IP Telephony in OECD countries as of 1997) (visited June 6, 1999) <http://www.oecd.org//dsti/sti/it/cm/prod/tisp97-3.htm>.

44. *See* Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 46 (1996) (codified as 47 U.S.C.A. § 151 *et seq.* (West Supp. 1999)).

45. *See* 47 U.S.C.A. § 254 (West Supp. 1999).

46. *See* 47 U.S.C. § 254(d) (West Supp. 1999). Up to now the FCC has not specifically ruled on the question of whether ISP services are telecommunications services. A petition on this issue filed with the FCC early in 1996 remains unanswered. *See In the Matter of The Provision of Interstate and International Interexchange Telecommunications Service via the "Internet" by Non-Tariffed, Uncertified Entities, Petition for Declaratory Ruling, Special Relief and Institution of Rulemaking Against VocalTec, Inc., et al.*, 11 FCC Rcd 22169, DA 96-414 (Mar. 25, 1996). Notably, international telecommunications services also are exempt from USF contribution obligations.

47. "Telecommunications carrier" is defined for most purposes by the 1996 Act as any provider of telecommunications services. "Telecommunications service" in turn is defined as "the offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of the facilities used." "Telecommunications" is defined as "the transmission, between or among points specified by the user, of information of the user's choosing, without change in the form or content of the information as sent and received." 47 U.S.C. § 153(44), (46), and (43). Recently the commission has sought comment on whether or not it should officially equate "telecommunications" and "basic service." In the Matter of Computer III Further Remand Proceedings, FCC 99-36 (Mar. 10, 1999); Further Notice of Proposed Rulemaking (Computer III Remand Further Notice), 13 FCC Rcd 6040, 6066-67 at ¶ 41, FCC 98-8 (Jan. 30, 1998).

48. Federal-State Joint Board on Universal Service, 12 FCC Rcd 8776, 9190, FCC 97-157 (May 8, 1997).

49. *See* James Lin and John Zahurancik, *IP Telephony: A Catalyst for Change*, 2 Telecomm. Rep. Int'l J. 21-26 (1998).

Reflecting these domestic pressures, in April 1998, the FCC issued a Report to Congress that examined the effect of service classifications on universal service contributions.[50] In that report, the FCC confirmed that it has not yet formally considered the proper service classification of IP Telephony but that it would continue to exempt ISPs from USF payment obligations.[51] The FCC indicated, without making any definitive pronouncement, that phone-to-phone[52] IP Telephony may bear more resemblance to "telecommunications" service than to unregulated "information services."[53] No further pronouncements on the status of IP Telephony have been made by the agency, but the domestic pressure for contributions to universal service continues to mount. Meanwhile, there are some who believe that the concept of universal service should be redefined to accommodate the unique attributes of the Internet.[54] Any reclassification of IP Telephony for domestic purposes would certainly have an impact on, and would have to be reconciled with, FCC international policies, and may also have an impact on how similar issues are addressed in other countries.

2. *Internet Access*

ISPs have also consistently been insulated as a matter of policy from paying interstate access charges to local exchange carriers (LECs). ISPs have been treated as "end users" and permitted to gain access to LEC distribution services for "dial-up" Internet calls simply by paying local business line rates under state-regulated tariffs. In 1997, the FCC decided that the ISP access charge exemption should be retained to advance the goals of the 1996 act to promote a competitive market for the Internet and other interactive computer services.[55]

The 1996 act requires that local exchange carriers establish "reciprocal compensation" arrangements for "transport and termination of telecommunications."[56] The FCC construed this provision to apply only to local traffic.[57] Beginning in 1996, however, the FCC received several requests for clarification of whether reciprocal compensation was due for Internet-related traffic. Pending an FCC determination, most states, which have authority over interconnection agreements, ruled that federal treatment of ISPs as end users required that reciprocal compensation arrangements

50. *See* Federal-State Joint Board on Universal Service, Report to Congress, 13 FCC Rcd 11501, FCC 98-67 (Apr 10, 1998).

51. *See id.* at 11522-23.

52. By "phone-to-phone" service, the FCC said it was referring to services in which the provider meets the following conditions: (1) it holds itself out as providing voice telephony or facsimile transmission service; (2) it does not require the customer to use customer premises equipment different from that necessary to place an ordinary touch-tone call (or facsimile transmission) over the public switched network; (3) it allows the customer to call telephone numbers assigned in accordance with the North American Numbering Plan and associated agreements; and (4) it transmits customer information without net change in form or content. *See id.* at 11543-44.

53. *See id.*

54. *See* Werbach, *supra* note 25, at 78-82.

55. *See* Access Charge Reform Order, 12 FCC Rcd 15,982, 16133-34, FCC 97-158 (May 16, 1997) *aff'd sub nom.* Southwestern Bell Tel. Co. v. FCC, 153 F.3d 523 (8th Cir. 1998). *See* 47 U.S.C.A. § 230(b)(2) (West Supp. 1999). *See* In the Matter of Deployment of Wireline Services Offering Advanced Telecommunications Capability, et al., Memorandum Opinion and Order and Notice of Proposed Rulemaking, 13 FCC Rcd 24011, FCC 98-188 (Aug. 7, 1998). *See also* Barbara Esbin, Internet Over Cable: Defining the Future in Terms of the Past, OPP Working Paper No. 30, Federal Communications Commission, Aug. 1998.

56. 47 U.S.C.A. § 251(b)(5) (West Supp. 1999).

57. *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, 11 FCC Rcd 15499, 16013, FCC 96-325 (Aug. 8, 1996), *aff'd in part and vacated in part sub nom.* Competitive Telecommunications Ass'n v. FCC, 117 F.3d 1068 (8th Cir. 1997), *aff'd in part and vacated in part sub nom.* Iowa Utils. Bd. v. FCC, 120 F.3d 753 (8th Cir. 1997), *aff'd in part and rev'd in part sub nom.* AT&T Corp. v. Iowa Utils. Bd., 119 S. Ct. 721 (1999).

apply. The incumbent LECs (ILECs) expected that the net flow of traffic would be heavily in their direction and, on that basis, they filed tariffs setting very high reciprocal termination charges. Competitive LECs (CLECs) responded by signing up customers with large amounts of inward-bound traffic, including, most notably, ISPs with large numbers of dial-up customers.

Resisting payments due under these arrangements, ILECs have argued that calls to ISPs are really interstate and that interstate access charges should apply to ISP traffic just as it does to interstate long-distance telephony. In response, in February of this year, the FCC took the first definitive step toward classifying Internet service, declaring in the *Dial-Up Internet Compensation Order* that ISP-bound traffic is "jurisdictionally mixed and largely interstate."[58] The FCC found that the jurisdictional nature of ISP-bound traffic must be determined by the end-to-end transmission between the end user and the Internet. There is no real "termination" of a dial-up Internet call because in a singe communication, a user may access websites on servers in various states and/or foreign countries, and a single website may be "cached" in a number of different locations. Nonetheless, the FCC determined that a "substantial portion of Internet traffic involves accessing interstate or foreign websites."[59]

The FCC went on to conclude, however, that although ISP services are interstate, in the absence of a federal rule on compensation arrangements, carriers and ISPs should remain bound by contractual compensation arrangements that they have already negotiated, and that states should not be precluded from making a determination that reciprocal compensation arrangements are appropriate.[60] The FCC has steadfastly denied that it has any intention of eliminating the exemption from access charges for ISPs.[61] Nonetheless, the FCC asked for public comment on whether federal rules regarding compensation in such circumstances should be set or whether arrangements are best left to negotiation.[62]

Concerns remain that the ultimate resolution of these issues may significantly affect the economics of Internet-based services. They certainly will, if in fact the FCC's new approach signals that Internet services are moving closer to the regulated sphere. If that is the case, and other countries follow suit, the regulatory view of the Internet may become more entrenched within traditional notions of telecommunications networks. This will certainly affect the economic advantages of the Internet. It could also have peripheral implications for a variety of non-voice Internet based services.

IV. Conclusion

It is fitting that the year reviewed here begins with an answer and ends with a question. The implementation of the WTO Basic Telecommunications Agreement was a watershed event that resolved once and for all the longstanding global debate over whether competition or government planning should rule the telecommunications sector. Overwhelmingly, it is now accepted world-wide that open markets subject to reasonable and transparent regulation are not only appropriate, but necessary, for the achievement of a modern information infrastructure.

58. *See* Implementation of the Local Competition Provisions in the Telecommunications Act of 1996; Inter-Carrier Compensation for ISP-Bound Traffic, Declaratory Ruling and Notice of Proposed Rulemaking, FCC 99-38 (Feb. 26, 1999) [hereinafter Dial-Up Internet Compensation Order].

59. *See id.* ¶ 18.

60. *See id.* ¶ 26.

61. *See, e.g.*, FCC Fact Sheet, The FCC, Internet Service Providers, and Access Charges (visited June 6, 1999) <http://www.fcc.gov/Bureaus/Common_Carrier/Factsheets/ispfact.htm>.

62. *See* Dial-Up Internet Compensation Order, *supra* note 58 ¶ 34.

Without having had much time to implement these new concepts, administrations around the world, including the U.S., must now grapple with the essential question of the future: what is it that we are regulating and to what end are we regulating it? IP Telephony is emblematic of this quandry, but by no means the only instance of it. All kinds of technical and service innovations strain against the limits of regulatory concepts that, though recently developed, are already outdated. Bright line distinctions between types of services will be elusive and legislated definitions will prove inadequate. The challenge of the Internet is that it holds the promise of a multidimensional future, but that its potential may be lost unless legislators and regulators can soon loosen the bonds of the unidimensional telecom paradigms of the past. Meeting the challenge will require a good deal of vision.